

REMARKS

By this Amendment, claims 1 and 2 have been amended and remain pending in the application. Claims 1 and 2 are independent.

The Examiner objected to the Declaration as not adequately identifying the specification to which it was directed. Applicants request reconsideration of this objection, maintaining that this identification by attachment to the Declaration is sufficient in accordance with the practice of the U.S. Patent and Trademark Office (USPTO).

Specifically, if identifying the specification on the basis of its attachment to the Declaration were not sufficient, then it would not be possible to file an acceptable Declaration concurrently with the filing of the application as, at the time of filing, there is no application serial number. Furthermore, requiring the Applicant to specify the filing date when concurrently filing the Declaration and application is not feasible as the inventors, who often execute the Declaration one or more days prior to actual filing, will generally not know the precise date when the application will, in fact, be filed when they sign the Declaration. Therefore, in order to include the filing date it would be necessary to amend the Declaration after the inventors have signed, which is not permitted. Finally, the undersigned attorney has filed hundreds of Declarations concurrently with their respective patent applications, all of which identified the application on the basis of its attachment to the Declaration, and all of which have been accepted by the USPTO. Therefore, the Examiner's reconsideration and withdrawal of the objection are requested.

The Examiner objected to the abstract as containing informalities. Applicants have provided a replacement abstract on a separate sheet attached to this Amendment.

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The Examiner rejected claim 1 under 35 U.S.C. 112, first paragraph, as not complying with the written description requirement, noting that language included in the claim was not restated in the specification. By this Amendment, Applicant has amended the specification to incorporate the claim language, thereby removing the basis for the rejection.

The Examiner rejected claim 2 under 35 U.S.C. 112, second paragraph, as being indefinite. With the amendments to claim 2 set forth herein, the informalities noted have been corrected such that claim 2 is in compliance with 35 U.S.C. 112, second paragraph.

The Examiner rejected claim 1 under 35 U.S.C. 101 as being directed to non-statutory subject matter, citing the need for a “practical application, which produce[s] a useful, concrete and tangible result,” and also noting that the language of claim 1 as examined did not specifically require that the claim steps be performed by a machine such as a computer.

By this Amendment, Applicants have amended claims 1 and 2 to affirmatively state that the claimed invention is performed using a computer. This does not represent new matter, in that the entire specification identifies the present invention as an intelligent *computer-assisted* language-learning (ICALL) system. Furthermore, persons of ordinary skill in the art would have understood from reading the specification that the use of a computer is contemplated and expected for implementation of the disclosed invention as it utilizes a knowledge base of templates, provides on-line tutoring capability, etc. (see, representatively and as only example, the last paragraph on page 2 of the specification).

In addition, Applicants have amended claims 1 and 2 to set forth that the method includes using the final grammar tree output of the computer-implemented process to teach students

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proper grammar in a language. In concluding with this step, the present invention produces a useful, concrete and tangible result in accordance with the Examination Guidelines for Computer-Related Inventions as issued in 1996 by the USPTO, and the examples provided in the associated training materials available at www.uspto.gov/web/offices/pac/compexam/examcomp.htm. Accordingly, claims 1 and 2 are directed to statutory subject matter under 35 U.S.C. 101, and withdrawal of the rejection is requested.

The Examiner rejected claims 1 and 2 under 35 U.S.C. 103(a) as being unpatentable over Sekine-Grishman, “A Corpus-based Probabilistic Grammar with Only Two Non-Terminals,” 1996 (“Sekine-Grishman”).

As set forth in claim 1, the present invention is directed to a method of analyzing grammar using a part-of-speech (POS) tagged parser with a template-based computer-assisted learning system for teaching language to a learner. According to the method, words and phrases of an input sentence are preassigned with POS tags. In determining probabilities with respect to the most likely match of the input sentence to the templates in the knowledge base, each phrase which has been preassigned with a POS tag is regarded as one word. Furthermore, the probability of preassigned words having a given tag is set as “1”, while the probabilities of words having been assigned with a different tag are set as “0”. Having assigned these probabilities, a plurality of grammar trees are obtained and, using the formula designated in claim 1, the combination within the plurality of grammar trees that maximizes the probability of the final grammar tree is determined. This final grammar tree is then used to provide feedback to the learner, on the basis of which the learner is taught correct sentence grammar. This is not shown in the prior art.

Sekine-Grishman uses standard taggers to process sentences with POS tags. In that the method of Sekine-Grishman provides all of the sentences with tags, they have no choice but to use standard automatic taggers. However, these standard taggers are not accurate enough in the state-of-the-art for the language learning purposes of the present invention.

In contrast to Sekine-Grishman, the present invention does not require that the POS tags be provided for all of the words and phrases, but instead allows language experts to preassign POS tags beforehand. This preassignment, in which some of the items may be fixed to be "1" or fixed to be "0", changes the way in which the method is performed as well as the results obtained, which is significant when trying to teach language learners the often fine nuances of a language that is foreign to them.

Additionally, the regarding of phrases preassigned with a POS tag as one word according to the claimed invention is also not taught by the prior art. Sekine-Grishman merely combines several tags into one category so as to reduce the rule sets; this is not comparable to regarding a phrase preassigned with a POS tag as one word.

For at least the foregoing reasons, claim 1 is patentable over Sekine-Grishman and favorable reconsideration is requested. Claim 2 is also in condition for allowance for at least the same reasons as claim 1, and particularly as incorporating a POS tagged parser that regards each phrase which has been preassigned with a POS tag as one word, and with which the probability of preassigned words having a given tag is set as "1", while the probabilities of words having been assigned with a different tag are set as "0".

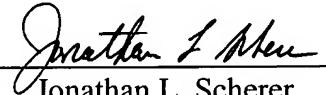
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Furthermore, the Sekine-Grishman approach is not able to provide any error feedback and, indeed, is not able to obtain a parse tree from an input sentence that contains errors. Instead, Sekine-Grishman relies on exact matching of the input sentence segments with the data set. Therefore Sekine-Grishman is not able to parse any keyed-in sentence, including those having errors embedded syntactically or from word usage, and thus cannot draw a parse tree with errors marked at leaves as set forth in claim 2.

With the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney so that the present application can receive an early Notice of Allowance.

Respectfully Submitted,

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Date: May 10, 2005
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